

AMENDMENT TO THE CLAIMS

1. (Currently Amended) A method of parsing an input text segment according to a left-corner chart parsing technique which populates a chart according to a ~~plurality~~ set of productions, the method comprising:

receiving the input text segment;

generating proposed incomplete edges, with mothers and predictions, based on the set of productions and based on the input text segment;

for each proposed incomplete edge:

performing a bottom-up left-corner check on the prediction of the proposed incomplete edge; and

if the bottom-up left-corner check on the prediction of the proposed incomplete edge is successful, performing a top-down left-corner check on the mother of the proposed incomplete edge, otherwise, ~~not adding~~ omitting the proposed incomplete edge ~~to~~ from the chart.

2. (Original) The method of claim 1 and further comprising:

if the proposed incomplete edge passes both the bottom-up left-corner check on the prediction of the proposed incomplete edge and the top-down left-corner check on the mother of the proposed incomplete edge, populating the chart with the proposed incomplete edge.

3. (Currently Amended) The method of claim 1 wherein performing the bottom-up left-corner check on the prediction of the proposed incomplete edge comprises:

for every complete edge of the form  $\langle X, k, j \rangle$  in the chart and every production with  $X$  as its left-most daughter, of the form  $A \rightarrow XY\alpha$ , determining whether the  $g_{j+1}^{\text{st}}$  terminal

input symbol,  $a_{j+1}$ , is a left corner of  $Y$ , wherein  $\langle X, k, j \rangle$  represents a terminal or nonterminal which begins at a  $k$ th position in the input text segment and ends at the  $j$ th position in the input text segment,  $Y$  represents a terminal or nonterminal,  $\alpha$  represents a sequence of terminals or nonterminals, and  $A$  represents a category which is the mother of the production.

4. (Original) The method of claim 3 wherein determining whether the  $j+1^{\text{st}}$  terminal input symbol,  $a_{j+1}$ , is a left corner of  $Y$ , comprises:

examining a left-corner table to determine whether it contains a pair of values including the  $j+1^{\text{st}}$  terminal input and the left corner of prediction  $Y$ .

5. (Currently Amended) The method of claim 4 wherein, if the left-corner table includes the pair, concluding that the bottom-up left-corner check on the prediction is satisfiedsuccessful, and if not, concluding that the bottom-up left-corner check on the prediction is not satisfiedsuccessful.

6. (Original) The method of claim 1 wherein performing the top-down left-corner check on the mother of the proposed incomplete edge comprises:

for every complete edge of the form  $\langle X, k, j \rangle$  in the chart and every production with  $X$  as its left-most daughter, of the form  $A \rightarrow XY\alpha$ , determining whether there is a  $B$  which is an element of  $P_k$ , such that  $A$  is a left corner of  $B$ , wherein  $B$  represents a category and  $P_k$  represents a set of predictions of incomplete edges in the chart ending at position  $k$  in the input text segment, wherein the prediction of an incomplete edge is a first as yet

unmatched symbol of the incomplete edge.

7. (Original) The method of claim 6 wherein determining whether there is a  $B$  which is an element of  $P_k$ , such that  $A$  is a left-corner of  $B$ , comprises:

examining a left-corner table to determine whether it indicates that  $A$  is a left corner of  $B$ .

8. (Original) The method of claim 7 wherein, if the left-corner table indicates that  $A$  is a left corner of  $B$ , adding the proposed incomplete edge to the chart, otherwise, not adding the proposed incomplete edge to the chart.

9. (Currently Amended) A left-corner chart parser configured to populate a chart according to productions by performing the steps of:

receiving the input text segment;

generating proposed incomplete edges, with mothers and predictions, based on ~~the~~ a set of productions and based on the input text segment;

for each proposed incomplete edge:

performing a bottom-up left-corner check on the prediction of the proposed incomplete edge; and

if the bottom-up left-corner check on the prediction of the proposed incomplete edge is successful, performing a top-down left-corner check on the mother of the proposed incomplete edge, otherwise, not adding the proposed incomplete edge to the chart.

10. (Currently Amended) A computer readable medium containing instructions which, when executed, cause the computer to parse an input text segment according to a left-corner chart parsing method

which populates a chart according to a plurality of productions, the method comprising:

- receiving the input text segment;
- generating proposed incomplete edges, with mothers and predictions, based on the ~~set~~ plurality of productions and based on the input text segment;
- for each proposed incomplete edge:
  - performing a bottom-up left-corner check on the prediction of the proposed incomplete edge; and
  - if the bottom-up left-corner check on the prediction of the proposed incomplete edge is successful, performing a top-down left-corner check on the mother of the proposed incomplete edge, otherwise, not adding the proposed incomplete edge to the chart.

11. (Original) The computer readable medium of claim 10 and further comprising:

- if the proposed incomplete edge passes both the bottom-up left-corner check on the prediction of the proposed incomplete edge and the top-down left-corner check on the mother of the proposed incomplete edge, populating the chart with the proposed incomplete edge.

12. (Currently Amended) The computer readable medium of claim 10 wherein performing the bottom-up left-corner check on the prediction of the proposed incomplete edge comprises:

- for every complete edge of the form  $\langle X, k, j \rangle$  in the chart and every production with  $X$  as its left-most daughter, of the form  $A \rightarrow XY\alpha$ , determining whether ~~the~~ a  $j+1^{\text{st}}$  terminal input symbol,  $a_{j+1}$ , is a left corner of  $Y$ , wherein  $\langle X, k, j \rangle$  represents a terminal or nonterminal which begins at a

kth position in the input text segment and ends at the ~~a~~ |  
jth position in the input text segment,  $Y$  represents a  
terminal or nonterminal,  $\alpha$  represents a sequence of  
terminals or nonterminals, and  $A$  represents a category  
which is the mother of the production.

13. (Original) The computer readable medium of claim 12 wherein  
determining whether the  $j+1^{\text{st}}$  terminal input symbol,  $a_{j+1}$ , is a left  
corner of  $Y$ , comprises:

examining a left-corner table to determine whether it  
contains a pair of values including the  $j+1^{\text{st}}$  terminal  
input and the left corner of prediction  $Y$ .

14. (Currently Amended) The computer readable medium of claim 13  
wherein, if the left-corner table includes the pair, concluding that  
the bottom-up left-corner check on the prediction is  
~~satisfied~~successful, and if not, concluding that the bottom-up left-  
corner check on the prediction is not ~~satisfied~~successful. |

15. (Original) The computer readable medium of claim 10 wherein  
performing the top-down left-corner check on the mother of the  
proposed incomplete edge comprises:

for every complete edge of the form  $\langle X, k, j \rangle$  in the chart and  
every production with  $X$  as its left-most daughter, of the  
form  $A \rightarrow XY\alpha$ , determining whether there is a  $B$  which is  
an element of  $P_k$ , such that  $A$  is a left corner of  $B$ ,  
wherein  $B$  represents a category and  $P_k$  represents a set of  
predictions of incomplete edges in the chart ending at  
position  $k$  in the input text segment, wherein the  
prediction of an incomplete edge is a first as yet  
unmatched symbol of the incomplete edge.

16. (Original) The computer readable medium of claim 15 wherein determining whether there is a  $B$  which is an element of  $P_k$ , such that  $A$  is a left-corner of  $B$ , comprises:

examining a left-corner table to determine whether it indicates that  $A$  is a left corner of  $B$ .

17. (Original) The computer readable medium of claim 16 wherein, if the left-corner table indicates that  $A$  is a left corner of  $B$ , adding the proposed incomplete edge to the chart, otherwise, not adding the proposed incomplete edge to the chart.

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